Janet Napolitano
Governor

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

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Stephen A. Owens
Director

Assessment of Qualification for Treatment under the Arizona Natural and Exceptional Events Policy for the High Particulate (PM_{10} and $PM_{2.5}$) Concentration Events in the Nogales, Arizona Area on December 24, 2007

Background

The Arizona Department of Environmental Quality (ADEQ) operates monitors at the Post Office in Nogales, Arizona for PM_{10} and $PM_{2.5}$ and at the Fire Station in Nogales, Sonora for PM_{10}. Federal Reference Method (FRM) filter based samples are collected at both locations. Beta-Attenuation Monitor Systems (BAMS) collect hourly concentration data at the Post Office site.

During the evening of December 24, 2007, a strong night-time temperature inversion set up in the Nogales area. With no significant ventilating winds available to break up the surface inversion, the inversion intensified and set up a drainage flow from the higher terrain to the south in Mexico through Nogales, Sonora, and into Nogales, Arizona.

The event brought significant elevated ambient concentrations of PM_{10} and $PM_{2.5}$ that exceeded the National Ambient Air Quality Standards (NAAQS) at the ADEQ Nogales Post Office monitors (BAMS). The fact that ambient concentrations exceed the NAAQS satisfies the criteria in 40 CFR 50.1(j) that the event "affects air quality."

Preliminary indications were that emissions from sources in Mexico, which are not subject to control by the Arizona state implementation plan (SIP), may have contributed to the event.

A PM_{10} SIP exists for Nogales, Arizona. All appropriate SIP control measures were in place during the event demonstrating, per 40 CFR 50.1(j), that the event "is not reasonably controllable or preventable," if in fact emissions from Mexico caused the exceedance.

Elevated PM_{10} and $PM_{2.5}$ concentrations were measured in the Nogales area. The following are the key PM monitor readings for the monitors examined in this report:

Monitor (Operator/Type)	AQS ID*	24-hr Avg PM_{10} or $PM_{2.5}$	1-hr Max PM_{10} or $PM_{2.5}$	Time of Max 1-hr	Flag**
NOGALES AREA					
Nogales AZ Post Office PM_{10} (ADEQ/BAM)	**04-023-0004 (3)**	**233**	**899**	**2200**	**RL**
Nogales AZ Post Office $PM_{2.5}$ (ADEQ/BAM)	**04-023-0004 (3)**	**71.5**	**334**	**2200**	**IL**

* EPA Air Quality System Identification Number
** 24-hr PM_{10} concentration influenced by exceptional event (international transport) to be flagged.
Type Abbreviations: BAM – Beta-Attenuation Mass Monitor (Continuous monitor)

The preliminary findings from this analysis were presented at a stakeholders meeting on June 11, 2008, in Phoenix, Arizona, and on June 17, 2008 in Nogales, Arizona. Public comment was solicited on the preliminary findings from May 28 through June 26, 2008. During that time, no comments were received from the public. ADEQ has finalized this demonstration, which was made available for public comment from August 11, 2008, through September 10, 2008. Any comments that were received were forwarded to EPA with this demonstration pursuant to 40 CFR 50.14(c)(3)(i).

NORTH PHOENIX

12-PHX Greenway

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	41	60	-	1	4	NE
2	40	63	-	1	3	NE
3	39	65	-	1	3	N
4	39	65	-	1	3	N
5	37	70	-	1	3	NE
6	38	67	-	2	4	NE
7	37	67	-	1	4	NE
8	36	72	-	1	3	N
9	41	63	-	1	2	NE
10	48	50	-	2	5	E
11	53	38	-	2	4	E
12	57	30	-	2	6	SW
1	60	26	-	2	6	SW
2	63	24	-	2	7	SW
3	64	23	-	2	5	W
4	65	21	-	2	6	NW
5	65	20	-	2	4	N
6	61	25	-	1	3	NW
7	54	35	-	1	2	NE
8	51	44	-	1	2	NE
9	48	52	-	1	3	N
10	47	55	-	1	2	N
11	45	59	-	1	3	NE
12	44	62	-	1	2	NE

CENTRAL PHOENIX

15-Phx Encanto

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	37	71	-	1	2	NE
2	37	73	-	0	2	N
3	36	76	-	0	2	NE
4	36	76	-	1	3	N
5	35	77	-	1	3	N
6	35	79	-	1	2	N
7	33	88	-	0	2	W
8	33	86	-	1	2	NE
9	40	69	-	1	4	SW
10	48	53	-	1	3	E
11	54	40	-	1	3	SW
12	58	29	-	2	4	E
1	60	25	-	1	4	N
2	63	23	-	2	4	SE
3	66	21	-	2	5	N
4	67	19	-	2	5	N
5	66	21	-	2	4	N
6	59	30	-	0	1	NW
7	51	43	-	0	1	NE
8	48	52	-	0	0	NW
9	46	59	-	0	2	NW
10	44	66	-	1	3	NE
11	42	72	-	1	3	E
12	43	65	-	3	7	E

NOGALES AIRPORT

NWS-Nogales

Hr	T(F)	VR	Dust	Spd	Gust	Dir
1	31	10		3	3	NE
2	30	10		0	0	-
3	30	10		0	0	-
4	29	10		3	3	S
5	28	10		0	0	-
6	29	10		0	0	-
7	31	10		0	0	-
8	32	10		5	5	NE
9	47	10		0	0	-
10	50	10		3	3	S
11	58	10		0	0	-
12	62	10		0	0	-
1	67	10		0	0	-
2	69	10		0	0	-
3	69	10		3	3	W
4	70	10		0	0	-
5	66	10		8	8	W
6	58	10		0	0	-
7	49	10		0	0	-
8	47	10		3	3	E
9	45	10		5	5	E
10	44	10		6	6	E
11	45	10		3	3	S
12	40	10		0	0	-

Event Contrib. Analysis

Hourly PM_{10} Conc. (µg/m^3)

MONITORS:

1-NOG PO (BAMS)
2-PM 2.5 NOG (BAMS)

24-Hr. Avg PM_{10}

Monitor:	with Event	w/o Event
1-NOG PO	233	64
2-PM 2.5	71	17

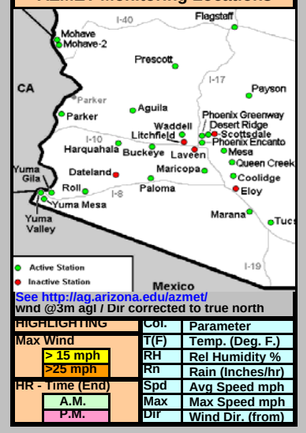
> NAAQS | < NAAQS

Pink=Event Contrib.

Conclusion: As shown above, the PM_{10} concentration would have been below the NAAQS "BUT FOR" the event contribution (hours highlighted in pink).

Hr	1	2
1	174	55
2	93	38
3	70	23
4	92	33
5	69	26
6	67	32
7	69	29
8	92	36
9	94	29
10	41	5
11	12	0
12	20	0
1	11	0
2	32	0
3	20	0
4	10	0
5	115	0
6	79	5
7	307	68
8	720	161
9	880	230
10	880	297
11	899	334
12	753	316

AZMET Monitoring Locations



See http://ag.arizona.edu/azmet/

wnd @3m agl / Dir corrected to true north

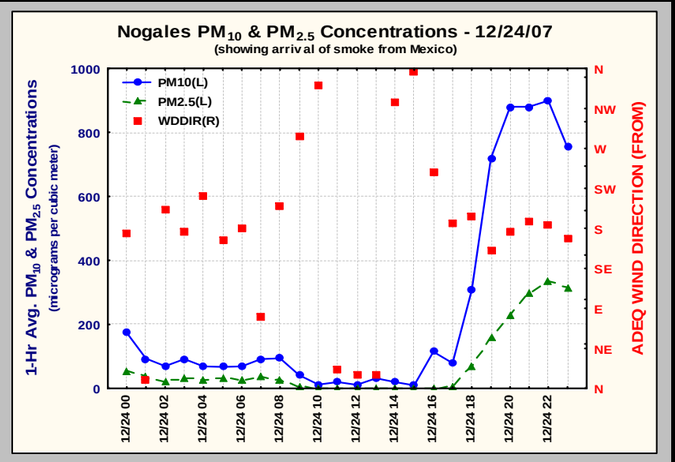
HIGHLIGHTING	Col.	Parameter
Max Wind	T(F)	Temp. (Deg. F.)
> 15 mph	RH	Rel Humidity %
>25 mph	Rn	Rain (Inches/hr)
HR - Time (End)	Spd	Avg Speed mph
A.M.	Max	Max Speed mph
P.M.	Dir	Wind Dir. (from)

Figure 1. Key Data for Event of December 24, 2007

PHX WINDS	KEY	PM10 PLOT
CEN. AZ WINDS		SAT IMAGES
SO AZ WINDS		PHX VIS. CAMERAS

SUMMARY OF EVENT

Drainage flow set up after sunset on the evening of 12/24 bringing heavy smoke from Mexico into the United States that impacted the Nogales Post Office Monitor operated by ADEQ. Higher $PM_{2.5}$ confirms the impact was smoke and dust as opposed to general dust.



PARKER

08-Parker

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	43	44	-	2	6	W
2	44	43	-	2	5	E
3	41	54	-	4	7	SE
4	37	64	-	3	5	NE
5	35	68	-	3	5	NW
6	35	72	-	3	6	E
7	34	74	-	3	6	NE
8	35	71	-	3	6	N
9	38	67	-	3	6	NE
10	47	51	-	2	5	NE
11	55	44	-	1	4	NE
12	59	31	-	2	5	NE
1	62	30	-	3	5	NE
2	64	27	-	3	6	NE
3	65	24	-	3	6	NE
4	67	23	-	2	4	NE
5	66	29	-	4	7	N
6	60	42	-	1	4	N
7	53	53	-	1	4	NW
8	47	67	-	3	5	N
9	46	59	-	2	3	NE
10	47	50	-	3	6	SE
11	45	54	-	3	6	E
12	42	62	-	3	5	NE

BUCKEYE

26-Buckeye

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	38	65	-	1	4	NE
2	37	70	-	2	4	N
3	37	65	-	4	7	NE
4	37	65	-	3	5	NE
5	35	73	-	1	4	W
6	34	75	-	1	4	NE
7	35	72	-	2	5	NE
8	35	70	-	2	5	N
9	39	63	-	2	6	NE
10	46	52	-	4	8	E
11	52	36	-	4	7	E
12	56	31	-	3	7	SE
1	59	30	-	2	5	SW
2	62	28	-	2	6	W
3	65	20	-	4	9	E
4	66	17	-	4	8	E
5	65	21	-	3	6	SE
6	60	28	-	1	2	S
7	53	42	-	2	5	N
8	49	50	-	4	5	N
9	47	50	-	4	6	NE
10	47	50	-	4	7	N
11	45	54	-	3	6	N
12	44	55	-	4	6	N

MARICOPA

06-Maricopa

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	35	78	-	2	3	S
2	35	76	-	3	6	S
3	37	71	-	5	7	S
4	37	66	-	4	7	SE
5	33	83	-	3	7	N
6	32	84	-	2	5	W
7	29	90	-	2	4	NE
8	29	91	-	2	6	W
9	35	79	-	2	6	W
10	41	65	-	1	3	S
11	47	58	-	1	4	SW
12	53	45	-	2	6	N
1	56	36	-	2	6	N
2	59	31	-	2	5	NW
3	62	27	-	4	7	N
4	63	26	-	4	7	N
5	64	26	-	2	5	N
6	59	32	-	1	2	NW
7	52	48	-	2	4	SW
8	48	61	-	3	4	S
9	45	64	-	3	4	SW
10	43	67	-	4	6	S
11	43	68	-	5	9	S
12	41	71	-	2	4	S

Historical Distribution

5-Yr. Dist. of Values (µg/m^3)

MONITORS:

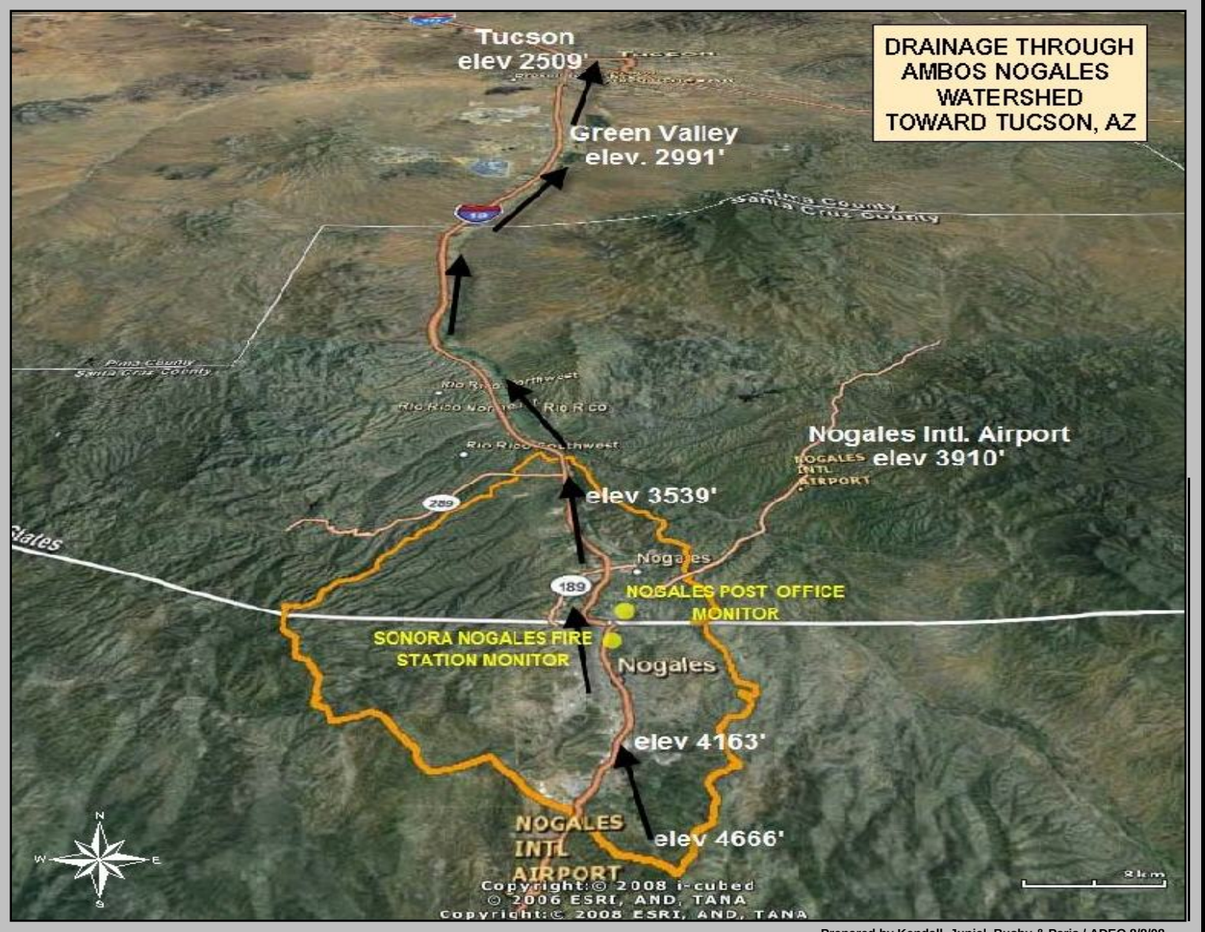
1-NOG PO (BAMS)
2-PM 2.5 NOG (BAMS)

Column Index

Yr - All Data (5-Yrs)
Sea - Data for Winter season only (5-Yrs)

Cum. Freq.	Mon 1 Yr	Mon 1 Sea	Mon 2 Yr	Mon 2 Sea
Min	4	5	1	3
0.5%	8	7	2	3
1.0%	8	8	2	3
2.5%	13	9	3	4
5%	17	15	3	4
10%	22	25	5	6
25%	35	48	7	11
50%	56	96	10	19
75%	96	138	16	27
90%	146	194	24	37
95%	180	233	29	45
97.5%	213	285	36	56
99.0%	244	322	47	102
99.5%	291	327	63	111
Max	351	351	141	141
Flagged Value	233		71	

Conclusion: Flagged Value is exceptional in nature (eg. greater than 95% of all data)



YUMA

02-YumaValley

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	41	51	-	1	6	S
2	43	50	-	3	7	N
3	44	47	-	3	7	NW
4	44	44	-	2	5	N
5	43	50	-	2	8	SW
6	41	54	-	2	4	NW
7	50	36	-	6	10	NE
8	43	50	-	5	6	NE
9	45	50	-	5	8	NE
10	52	39	-	7	9	E
11	56	33	-	7	11	E
12	60	32	-	7	10	E
1	64	27	-	6	9	E
2	66	25	-	5	9	E
3	68	22	-	5	8	E
4	69	21	-	5	7	E
5	68	23	-	3	6	E
6	63	28	-	2	6	N
7	58	35	-	2	4	N
8	54	40	-	1	3	N
9	49	49	-	1	5	NE
10	53	39	-	5	7	N
11	46	56	-	2	4	SE
12	44	62	-	2	4	NE

PALOMA

19-Paloma

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	34	74	-	3	5	SE
2	33	84	-	1	3	NE
3	32	80	-	1	3	SW
4	33	77	-	2	4	W
5	30	84	-	3	5	SE
6	29	87	-	2	5	SE
7	30	84	-	3	6	E
8	31	82	-	1	4	SE
9	35	77	-	4	6	SE
10	42	68	-	5	7	E
11	49	49	-	2	5	NE
12	54	41	-	4	7	NE
1	59	30	-	6	8	NE
2	63	26	-	5	9	NE
3	65	23	-	5	8	E
4	65	26	-	4	6	E
5	62	45	-	3	4	NE
6	54	54	-	4	6	N
7	48	58	-	4	7	NE
8	47	58	-	3	6	N
9	45	57	-	3	5	SE
10	41	67	-	4	6	SW
11	37	80	-	4	6	W
12	35	79	-	3	5	SW

MARANA

13-Marana

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	35	77	-	6	8	E
2	35	77	-	6	9	E
3	34	79	-	5	8	SE
4	34	80	-	6	10	SE
5	35	73	-	8	11	SE
6	34	75	-	7	13	SE
7	35	72	-	6	12	SE
8	35	71	-	6	13	SE
9	39	60	-	7	12	SE
10	44	50	-	6	10	SE
11	51	38	-	6	11	SE
12	58	28	-	2	6	SE
1	63	24	-	2	7	N
2	64	23	-	6	11	NW
3	65	23	-	7	10	NW
4	64	23	-	6	9	NW
5	62	28	-	6	10	NW
6	56	36	-	1	6	NW
7	51	47	-	2	4	NW
8	47	59	-	1	3	SW
9	44	64	-	2	5	SE
10	44	65	-	5	9	SE
11	46	57	-	6	11	SE
12	45	61	-	4	9	E

TUCSON

01-Tucson

Hr	T(F)	RH	Rn	Spd	Max	Dir
1	33	83	-	2	4	E
2	32	82	-	2	4	E
3	30	88	-	2	4	E
4	30	90	-	2	4	E
5	29	90	-	2	4	E
6	28	92	-	1	3	SE
7	28	94	-	2	5	E
8	29	91	-	2	3	E
9	36	73	-	1	3	SE
10	47	49	-	1	3	SE
11	55	33	-	2	4	SE
12	59	28	-	2	6	E
1	65	20	-	3	7	E
2	68	16	-	3	9	SW
3	68	18	-	6	9	NW
4	68	16	-	5	8	W
5	66	22	-	6	10	NW
6	59	28	-	6	10	NW
7	55	34	-	4	7	W
8	52	40	-	3	7	W
9	44	63	-	1	3	E
10	42	66	-	3	6	E
11	43	62	-	3	6	E
12	41	67	-	2	4	E

Prepared by Kendall, Juniel, Busby & Paris / ADEQ 8/8/08

Assessment Under the Technical Criteria Document (TCD)

1. Properly qualify and validate the air quality measurement to be flagged. As this was not a filter sampling date (1-in-6 run day), only data from the continuous analyzers were examined. The air quality monitoring data were reviewed by ADEQ, the agency responsible for operation of the monitor. All hourly PM_{10} and $PM_{2.5}$ readings from the Nogales BAMS monitors were found to be valid for December 24th. No specific local sources were reported as significantly contributing to the air quality episode.

2. Review suspected contributing sources. The event began on the evening of Christmas Eve. There was a significant fraction of $PM_{2.5}$ measured during this episode. This is unusual for the arid southwest, except when smoke from smoldering fires can be a significant source of $PM_{2.5}$. Lack of any significant transport winds would indicate that the emissions are probably from nearby the monitor. The plot of hourly PM_{10} and $PM_{2.5}$ concentration data in the upper right corner of Figure 1, in conjunction with the wind direction data, confirms the identical timing of the transport from the south across the U.S. / Mexico border when the elevated PM concentrations began. It is clear from the plot that almost a third of the PM_{10} is in the form of $PM_{2.5}$, probably from home heating. This event appears to have significantly more non-specific course dust, probably from dirt roads, than the January 1, 2007 episode, which was almost all $PM_{2.5}$ from smoke.

3. Examine all air quality monitoring information. Data from all monitors in the network were reviewed. Monitors from the Nogales area are summarized in the table in the Background section of this assessment. Pursuant to 40 CFR 50.14(c)(3)(iii)(C), the "Historical Distribution" Table in Figure 1 has been included to demonstrate that the event is associated with measured concentrations in excess of normal historical fluctuations, including background (i.e., concentrations greater than the 95th percentile).

4. Examine the meteorological conditions before and during the event. Figure 1 includes a map showing the terrain and drainage patterns of the Nogales area. Cold air forming in the mountains south of the U.S. / Mexico border will flow northward into the Santa Cruz River Drainage Basin. National Weather Service data from the Nogales Airport, northeast of the city, showed calm to light and variable winds in the evening hours from the east or south. The data from ADEQ's wind monitor are included in the PM daily report sheet (see attachments). At the Post Office, winds shifted to being from the south at approximately 5:00 p.m. at 1 to 2 miles per hour. The concentrations picked up on the evening of December 24th when the winds shifted and started moving out of the south. It appears the source is coming from Mexico, since there are no sources in the United States between the monitor and the border.

5. Perform a qualitative attribution to emission source(s). All evidence indicates the elevated PM_{10} and $PM_{2.5}$ concentrations in the Nogales, Arizona, area can be attributed to smoke emissions from sources south of Nogales, Arizona, in Nogales, Sonora. The data available for this analysis do not allow for development of a source-specific emission allocation. The hourly concentration data do not show any significant source other than the drainage dust and smoke associated with the event.

6. Estimation of Contribution from Source or Event. The primary source appears to be drainage dust and smoke from Mexico for which there is no effective or efficient method to estimate the relative contributions from specific sources. The demonstration analysis contained in this report establishes the linkage between the measurements to be flagged and the event, thus satisfying the requirement in 40 CFR 50.14(c)(3)(iii)(B). Pursuant to 40 CFR 50.14(c)(3)(iii)(D), the "Event Contrib. Analysis" Table in Figure 1 has been included to demonstrate that there would have been no exceedances or violations but for the event (i.e., the contribution during the event overwhelmed the 24-hour averages).

7. Determination that a Natural or Exceptional Event Contributed To an Exceedance. Based on this analysis, the event satisfies the requirement in 40 CFR 50.1(j) that the elevated concentrations at the Nogales Post Office monitors were attributed to an exceptional event caused by international transport of emissions into the United States.

Conclusion

International transport of emissions. The elevated PM_{10} and $PM_{2.5}$ events on December 24, 2007, in Nogales, Arizona were the result of emissions from Mexico which were transported into the United States in a slow moving drainage flow originating in the mountains south of Nogales, Sonora.

The fact that all appropriate SIP control measures were in place and emissions from international transport caused the exceedance demonstrates that, per 40 CFR 50.1(j), that the event "is not reasonably controllable or preventable."

The "other" flag (RL and IL) were applied to the PM_{10} and $PM_{2.5}$ measurements, respectively, as the monitors would have been below the NAAQS but for the contribution of the event. (All data regardless of the type of monitor were impacted by international transport. The "IL" flag was applied to the $PM_{2.5}$ BAMS monitor since the "RL" flag could not be set.)

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final) HOURLY OBSERVATIONS TABLE NOGALES INTERNATIONAL ARPT (03196) NOGALES , AZ (12/2007)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 3908 ft. above sea level
Latitude: 31.421
Longitude: -110.846
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp		Wet Bulb Temp		Dew Point Temp		Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
						(F)	(C)	(F)	(C)	(F)	(C)											
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
24	0054	12	CLR	10.00		31	-0.6	26	-3.4	16	-8.9	54	3	060		26.17			30.17	AA		30.22
24	0154	12	CLR	10.00		30	-1.1	25	-3.7	16	-8.9	56	0	000		26.18	5	003	30.16	AA		30.23
24	0254	12	CLR	10.00		30	-1.1	25	-3.9	15	-9.4	54	0	000		26.16			30.15	AA		30.21
24	0354	12	CLR	10.00		29	-1.7	25	-4.1	16	-8.9	58	3	160		26.16			30.15	AA		30.21
24	0454	12	CLR	10.00		28	-2.2	24	-4.4	16	-8.9	61	0	000		26.15	8	010	30.14	AA		30.19
24	0554	12	CLR	10.00		29	-1.7	25	-3.9	17	-8.3	61	0	000		26.15			30.15	AA		30.19
24	0654	12	CLR	10.00		31	-0.6	26	-3.4	16	-8.9	54	0	000		26.15			30.17	AA		30.19
24	0754	12	CLR	10.00		32	0.0	27	-2.7	18	-7.8	56	5	060		26.15	3	001	30.19	AA		30.20
24	0854	12	CLR	10.00		47	8.3	36	2.1	19	-7.2	33	0	000		26.15			30.16	AA		30.20
24	0954	12	CLR	10.00		50	10.0	38	3.1	20	-6.7	31	3	180		26.15			30.15	AA		30.20
24	1054	12	CLR	10.00		58	14.4	41	4.9	17	-8.3	20	0	000		26.14	8	004	30.13	AA		30.18
24	1154	12	CLR	10.00		62	16.7	43	5.9	16	-8.9	17	0	000		26.11			30.08	AA		30.15
24	1254	12	CLR	10.00		67	19.4	45	7.3	17	-8.3	15	0	000		26.07			30.03	AA		30.11
24	1354	12	CLR	10.00		69	20.6	46	7.7	16	-8.9	13	0	000		26.05	6	032	29.99	AA		30.08
24	1454	12	CLR	10.00		69	20.6	46	7.6	15	-9.4	12	3	250		26.03			29.98	AA		30.06
24	1554	12	CLR	10.00		70	21.1	46	7.9	16	-8.9	13	0	000		26.02			29.97	AA		30.05
24	1654	12	CLR	10.00		66	18.9	44	6.6	13	-10.6	13	8	260		26.02	6	009	29.98	AA		30.05
24	1754	12	CLR	10.00		58	14.4	40	4.7	15	-9.4	18	0	000		26.02			29.99	AA		30.05
24	1854	12	CLR	10.00		49	9.4	36	2.4	17	-8.3	28	0	000		26.02			30.02	AA		30.05
24	1954	12	CLR	10.00		47	8.3	36	1.9	18	-7.8	31	3	070		26.03	3	005	30.03	AA		30.06
24	2054	12	CLR	10.00		45	7.2	35	1.5	19	-7.2	35	5	090		26.03			30.00	AA		30.06
24	2154	12	CLR	10.00		44	6.7	35	1.3	20	-6.7	38	6	100		26.03			29.98	AA		30.06
24	2254	12	CLR	10.00		45	7.2	35	1.5	19	-7.2	35	3	180		26.02	8	003	29.96	AA		30.05
24	2354	12	CLR	10.00		40	4.4	32	0.1	20	-6.7	45	0	000		26.00			29.94	AA		30.03

Dynamically generated Wed Apr 16 16:10:49 EDT 2008 via http://cdo.ncdc.noaa.gov/qclcd/QCLCD

Arizona Department of Environmental Quality

AIR QUALITY DIVISION

PM10BAM.STD Daily Concentration Report (ug/m3)

For 12/24/2007

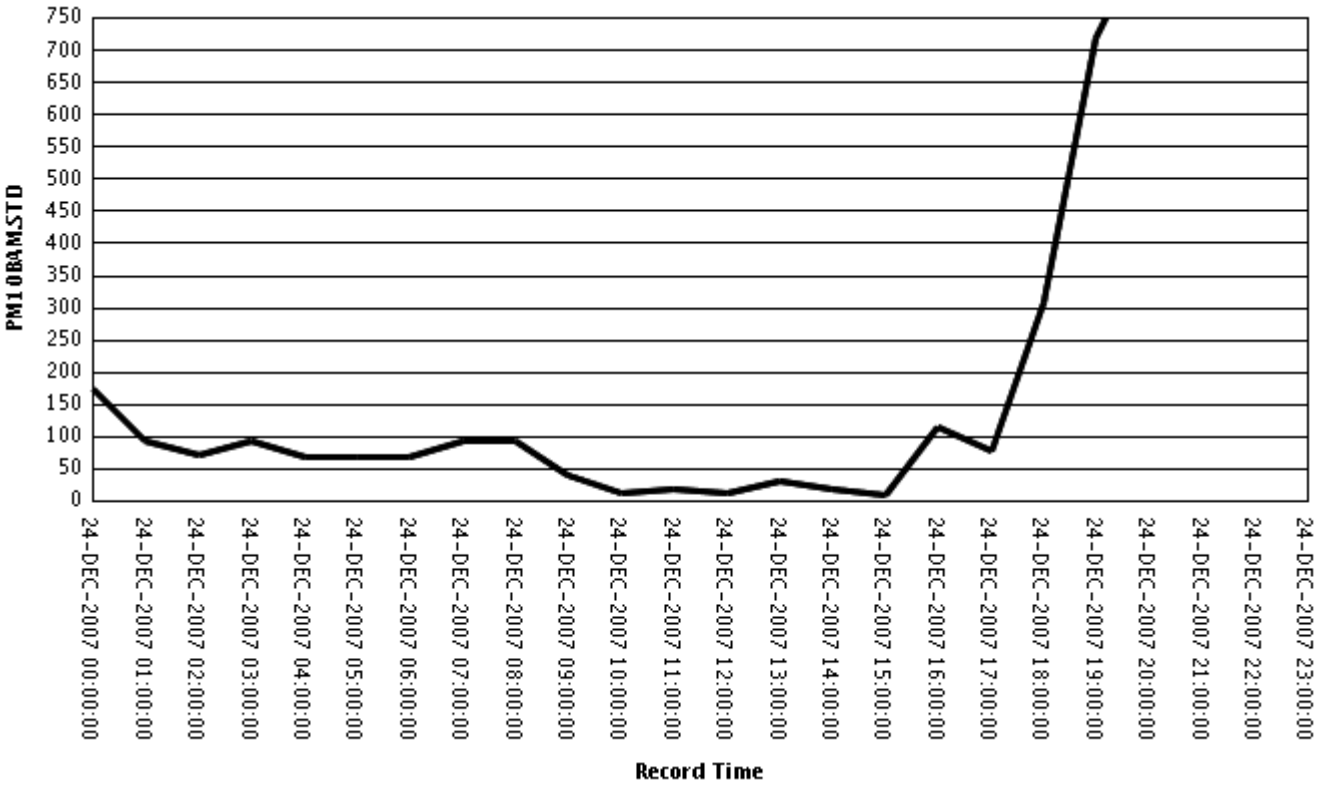
Preliminary Data QA LEVEL - 2

AAATEOM_GRAPH

04/15/2008

Place ID: **16511**

Name: **NOGALES POST OFFICE**



Record Time	PM Average	Wind Speed (MPH)	Wind Direction	Temperature(F)	Relative Humidity
24-DEC-2007 00:00:00	174	.9	175		
24-DEC-2007 01:00:00	93	.4	10		
24-DEC-2007 02:00:00	70	.4	202		
24-DEC-2007 03:00:00	92	.4	177		
24-DEC-2007 04:00:00	69	.7	217		
24-DEC-2007 05:00:00	67	.7	166		
24-DEC-2007 06:00:00	69	.7	181		
24-DEC-2007 07:00:00	92	.7	80		
24-DEC-2007 08:00:00	94	.9	204		
24-DEC-2007 09:00:00	41	.9	284		
24-DEC-2007 10:00:00	12	1.1	341		
24-DEC-2007 11:00:00	20	3.4	21		
24-DEC-2007 12:00:00	11	3.8	15		
24-DEC-2007 13:00:00	32	2	15		
24-DEC-2007 14:00:00	20	1.8	322		
24-DEC-2007 15:00:00	10	3.1	356		
24-DEC-2007 16:00:00	115	5.6	244		
24-DEC-2007 17:00:00	79	1.8	186		
24-DEC-2007 18:00:00	307	1.6	194		
24-DEC-2007 19:00:00	720	1.3	156		
24-DEC-2007 20:00:00	880	1.6	176		
24-DEC-2007 21:00:00	880	1.1	188		
24-DEC-2007 22:00:00	899	1.3	184		
24-DEC-2007 23:00:00	753	1.1	168		